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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,902	12/17/2001	David Thiede	737.011US1	1988

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EXAMINER	
WILLIAMS, THOMAS J	

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,902	THIEDE ET AL.	
	Examiner	Art Unit	
	Thomas J. Williams	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Acknowledgment is made in the receipt of the amendment filed June 7, 2004.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 34-41 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,450,587 to MacGregor et al.

Re-claim 34, MacGregor et al. discloses a method comprising: receiving an electronic speed signal for a vehicle (column 6 lines 6-15); receiving an electronic direction signal (interpreted as a speed signal, since a forward direction will result in a sensed speed, see column 6 lines 6-14); receiving an electronic condition signal for the vehicle from a sensor insensitive to speed (column 5 lines 44-57); and modulating the brake system of the vehicle to restrict vehicle movement based on the speed signal, the direction signal, and the condition signal.

Re-claim 35, the condition signal is one of a open door, or a lift signal, column 5 lines 5-25.

Re-claim 36, the brake system is energized when the speed signal indicates the vehicle is substantially stationary, see column 24 lines 8-14.

Re-claims 37-39, the brake system is energized when the direction signal indicates the vehicle is moving (interpreted as either forward or rearward), specifically if the vehicle speed is below a predetermined value. A vehicle motion sensor will detect forward and rearward motion.

Re-claim 40, when an unsafe condition for movement is detected (due to an obstacle, such as a person) the brake system is modulated to prevent vehicle movement. Range data is used to determine the distance to the obstacle.

Re-claim 41, the unsafe condition is interpreted as a hazard, upon which an emergency stop procedure will be executed.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4, 6-34, 42, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,519,805 to Thorne-Booth in view of US 5,734,336 to Smithline.

Re-claim 1, Thorne-Booth teaches a system comprising: a processor 10 coupled to a vehicle 16; a brake controller is coupled to the processor (column 1 line 43; it is disclosed that signals from the computer control the vehicle deceleration, see column 6 lines 70-75); a first range detector is coupled to the processor and the vehicle, see figure 3 (a position sensing device is interpreted a range detector, see column 1 lines 49-50); the processor executes instructions to operate the brake controller to selectively apply and release a brake of the vehicle based on a comparison of a deceleration profile with range data from the first range detector and a speed of the vehicle, column 1 lines 46-68 and column 2 lines 45-68 to column 3 lines 1-22.

Figure 1 also illustrates both the application and releasing of the braking force. The application of the braking force occurs when the actual deceleration (broken line) rises above the desired deceleration (solid line). The braking force release condition occurs when the actual deceleration falls below the desired deceleration.

However, Thorne-Booth fails to teach the range detector as being a wireless range detector. Smithline teaches a vehicle equipped with range detecting sensors that are wireless, specifically the sensors are acoustic transducers. It would have been obvious to one of ordinary skill in the art to have utilized the teachings of Smithline with regards to wireless range sensing detectors when having modified the system of Thorne-Booth, since wireless range sensing

devices would have eliminated the requirement for mounting position sensing equipment near a dock or platform, thus reducing overall maintenance and installation costs.

Re-claim 2, Thorne-Booth fails to teach a wireless transmission system for transmitting range information to the processor.

Smithline teaches a range detector having a transmitter and a wireless receiver coupled to a processor. It would have been obvious to one of ordinary skill in the art as a matter of design choice to have provided the range detector and processor of Thorne-Booth with a transmitter and wireless receiver as taught by Smithline, wireless systems are easily retrofitted to existing vehicles and require less materials (through the elimination of wires) thus reducing weight and cost.

Re-claim 3, the tachometer provides speed information of the vehicle to the processor, tachometers are defined as devices that measure rotational speed

ta·chom·e·ter (tà-kòm'ĭ-ter, te-) *noun*: An instrument used to measure the rotations per minute of a rotating shaft.[1]

Re-claim 4, it is the opinion of the examiner that all data devices on a vehicle are coupled to the on-board computer or processor, thus the tachometer being coupled to the processor is technically coupled to the speedometer by at least via the processor. The phrase coupled do not imply a direct connection.

Re-claims 6 and 7, the use of wheel speed sensors as vehicle speed sensor is known in the art; coupling wheel speed sensors to a trailer wheel or a tractor wheel is known in the art

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especially with vehicles equipped with anti-lock brake systems, thus providing a means of ascertaining accurate vehicle speed. This is supported by the Automotive Handbook citation provided to the applicant in the PTO-892 form mailed November 22, 2002.

Re-claim 8, Hall effect sensors are one form of wheel speed sensors, wheel speed sensors are generally connected to the processor. This position is supported by the Automotive Handbook citation provided to the applicant.

Re-claims 9-11, 15-18, 20-22, 29 and 30, Thorne-Booth is silent regarding the use of a plurality of range detectors facing different directions, or the types of detectors used (such as radar and ultrasonic). Each of the range detecting devices is known in the art as taught by Smithline. Furthermore, the use of a plurality of devices facing different directions is taught by Smithline.

It would have been obvious to one of ordinary skill in the art as a matter of design choice to have incorporated the use of a plurality of sensing devices in the apparatus of Thorne-Booth as taught by Smithline, thus enabling the system to avoid unwanted contact with objects within approximately a 360 degree angle. The specific type of range device used at each position is considered a design choice. The artisan will identify and use the best type of range detector based upon the requirements at that position.

Re-claim 12, the advance of the vehicle towards a desired stopped position is broadly interpreted as a vehicle direction data or information, the processor receives all the information generated.

Re-claim 13, a movement of the vehicle is determined by the tachometer of Thorne-Booth. It is known in the art to use a Hall effect sensor as a wheel speed sensor, which is categorized as a tachometer. Both sensors are designed to measure speed of rotation. This is supported by the Automotive Handbook citation provided to the applicant.

Re-claim 14, Thorne-Booth teaches a method comprising: receiving distance data from a range detector based on a distance between a vehicle and an obstacle; receiving speed information; generating a correction signal based on a comparison of the distance data and speed information with a deceleration profile; and modulating a brake of the vehicle based on the correction signal, see summary and column 4 lines 63-75 to column 5 lines 1-18.

However, Thorne-Booth fails to teach the range detector as being a wireless range detector. Smithline teaches a vehicle equipped with range detecting sensors that are wireless, specifically the sensors are acoustic transducers. It would have been obvious to one of ordinary skill in the art to have utilized the teachings of Smithline with regards to wireless range sensing detectors when having modified the system of Thorne-Booth, since wireless range sensing devices would have eliminated the requirement for mounting position sensing equipment near a dock or platform, thus reducing overall maintenance and installation costs.

Re-claim 19, the advance of the vehicle towards a desired stopped position is broadly interpreted as a vehicle direction data or information.

Re-claim 23, a wheel speed sensor falls into a category of a tachometer, which are devices that detect rotational speed.

Re-claim 24, a wheel speed sensor or tachometer measures distance over time, in essence distance data is included in the data received from a wheel speed sensor.

Re-claim 25, one method of modulation brake pressure is by transmitting pulses to a brake valve. As is known in the art brake systems are equipped with brake valves, for controlling the brake pressure transmitted to the brake actuator. By transmitting pulses to the brake valve one can control the increase or decrease of brake pressure in the brake actuator ultimately controlling the actual deceleration of the vehicle.

Re-claim 26, Thorne-Booth teaches a method comprising: receiving speed information from the vehicle, such as from a tachometer; receiving obstacle information from a sensor, the sensor is coupled to the vehicle, such as distance to a predetermined stopping position d1; determining a deceleration profile based on speed information and the obstacle information, see figure 1; modulating a brake system of the vehicle based on the deceleration profile, see figure 1 specifically noting the change in actual deceleration (broken line) relative to the desired deceleration (solid line).

However, Thorne-Booth fails to teach the range detector as being a wireless range detector. Smithline teaches a vehicle equipped with range detecting sensors that are wireless, specifically the sensors are acoustic transducers. It would have been obvious to one of ordinary skill in the art to have utilized the teachings of Smithline with regards to wireless range sensing detectors when having modified the system of Thorne-Booth, since wireless range sensing devices would have eliminated the requirement for mounting position sensing equipment near a dock or platform, thus reducing overall maintenance and installation costs. The acoustic transducer is insensitive to speed.

Re-claim 27, a data bus is interpreted by the examiner as an information line between the sensor (such as wheel speed sensor 14) and the processor 10, see figure 3. See following definition:

bus (bùs) *noun*: *Computer Science.* A parallel circuit that connects the major components of a computer, allowing the transfer of electric impulses from one connected component to any other.[2]

As best understood by the examiner a data bus is merely a bus (or line) for transferring data between a processor (or computer) and a component, such as a sensor.

Re-claim 28, the speed information includes a signal received from a wheel speed sensor 14. A wheel speed sensor can be defined as a tachometer 14, both measure speed of rotation.

Re-claims 31-33, common vehicle brake components include dump valves and hold valves which are normally controlled by electrical signals. Thorne-Booth discloses that the system is designed for use with standard brake equipment, many vehicles are equipped with brake systems having dump valve and hold valves, such systems are well known in the art.

Re-claim 34, Thorne-Booth teaches a method comprising: receiving an electronic speed signal (from tachometer) for a vehicle; an electronic direction signal (from the tachometer and thus speed signal); an electronic condition signal for the vehicle from a sensor insensitive to speed (such as position of the vehicle relative to the stop position); and modulating a brake system of the vehicle to restrict vehicle movement based on the speed signal, the direction signal, and the condition signal.

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However, Thorne-Booth fails to teach the range detector as being a wireless range detector. Smithline teaches a vehicle equipped with range detecting sensors that are wireless, specifically the sensors are acoustic transducers. It would have been obvious to one of ordinary skill in the art to have utilized the teachings of Smithline with regards to wireless range sensing detectors when having modified the system of Thorne-Booth, since wireless range sensing devices would have eliminated the requirement for mounting position sensing equipment near a dock or platform, thus reducing overall maintenance and installation costs. The acoustic transducer (or position sensor) is insensitive to vehicle speed.

Re-claim 36, the brake system remains energized even after the vehicle reaches the stop position, see abstract. A stopping control apparatus is interpreted as stopping the vehicle at a desired position and maintaining the vehicle at the desired position.

Re-claims 37 and 39, the brake system is energized (interpreted as increasing or decreasing the vehicle deceleration) when the electronic direction signal (interpreted as the vehicle speed signal) indicated that the vehicle is moving. Any movement, forward or rearward, will be detected by the tachometer which provides the vehicle speed signal to the processor.

Re-claim 40, the range information of the vehicle relative to the stop position (or obstacle) is utilized by the processor to modulate the brake system of the vehicle.

Re-claims 42, 44 and 45, Thorne-Booth teaches a modulation in brake pressure, indicated by an ability to change the vehicle deceleration, see figure 1, thus a reduced deceleration is achieved by a reduction in brake pressure or release of a brake in the brake system.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thorne-Booth in view of Smithline as applied to claim 1 above, and further in view of US 3,918,058 to Noyori et al.

Thorne-Booth fails to teach the use of a Doppler radar sensor as the vehicle speed sensor. Noyori et al. teaches a speed sensor that utilizes the Doppler effect. It would have been an obvious matter of design choice for one of ordinary skill in the art to have utilized a Doppler radar sensor to detect vehicle speed in the apparatus of Thorne-Booth as taught by Noyori et al., the Doppler radar sensor system is functionally equivalent to a wheel speed sensor.

8. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thorne-Booth in view of Smithline as applied to claim 14 above, and further in view of GB 2,334,560 to Ingo.

Thorne-Booth fails to teach modulating or increasing the vehicle brake pressure if it is determined that the vehicle is moving from a parked position. Ingo teaches an automatic braking operation during a parking condition that is triggered if a vehicle speed is sensed (indicating direction) and if the vehicle speed being below a limit value. It would have been obvious to one of ordinary skill in the art to have provided the apparatus of Thorne-Booth with a means of increasing or modulating brake pressure when it is sensed that the parked vehicle is inadvertently moving as taught by Ingo, thus providing a means of maintaining the parked vehicle in the desired stop or parked position.

Response to Arguments

9. Applicant's arguments filed June 7, 2004 have been fully considered but they are not persuasive. The examiner is broadly interpreting what constitutes a range sensor. For instance it is believe that the equipment contemplated by Throne-Booth, specifically the transmission cables

cited by the applicant, are in fact a device for determining the distance of the vehicle relative to the stopping point, or dock in this case. Furthermore, it is believed that this type of system is insensitive to vehicle speed, since each cable at a predetermined distance will be tripped as the vehicle moves along the track. As such it is believed that the speed of the vehicle is irrelevant, and the position of the vehicle is recalculated as each wire is tripped. This is similar to the wireless range sensor, in that the range of the vehicle will be recalculated as the vehicle moves along the track.

Regarding claim 34, Throne-Booth discloses in column 2 lines 46-47 that a velocity signal (equivalent to the speed signal) is obtained from the tachometer. Furthermore, a velocity signal will result from a movement of the vehicle, either forward or reverse. Thus the existence of a velocity signal indicates a movement in one of two possible directions. It is anticipated that an electrical transmission means is used for transmitting the signal from the tachometer to the computer. The status of claims 35-42 was listed in the Office action summary, the omission from the detailed action was merely typographical error. It is noted that each claim was addressed in the detailed Office action.

Smithline is merely relied upon to teach the known use of wireless sensors and the various types of wireless sensors known in the art. The concepts regarding the control of the braking equipment is taught by Throne-Booth. Hence, Smithline is not relied upon to teach control of the braking equipment. It is the position of the examiner that by using wireless transmitters at the sensor and wireless receivers at the processor would have eliminated the need for connecting wires between the sensors and the processor. Therefore one would have saved money by eliminating the need for purchasing such wire. Furthermore, it is believed that the

amount of time necessary to attach the system to the vehicle would have been reduced. A wireless system would have only required the attachment of the sensor and the receiver at remote locations on the vehicle. Thus eliminating the time needed for running and installing wire on the vehicle between the sensor and the processor. Lastly, the weight associated with the wire would have been eliminated thus reducing overall weight for the vehicle. It is believed that all of these reasons would have been known to one of ordinary skill in the art.

Noyori is merely relied upon to teach a different concept by which a vehicle speed would have been determined by one of ordinary skill in the art at the time of the invention. It is not believed the combination of Noyori would have a negative impact on the apparatus of Throne-Booth.

Ingo is relied upon to teach a parking brake function which meets the limitations set forth in claim 43.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached at (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

THOMAS WILLIAMS
PATENT EXAMINER

Thomas Williams

AU 3683
9-1-04

TJW

September 1, 2004